

## The Need to Prioritize Action to Address Climate Change Risks by All Means

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### Abstract

*This article describes some high-level guidance for actions to be taken immediately in order to address the ever-increasing climate change risks. The approaches considered span the full range as described in the literature and are described as the four pillars of climate policy. Pillar 1 describes mitigation, the reduction of greenhouse gas emissions, pillar 2 adaptation, the incremental or transformational change of systems to enhance resilience of natural and human systems against current and future impacts of climate change, pillar 3 carbon dioxide removal (CDR) in order to reduce the concentration of this long-living greenhouse gas in the atmosphere to a level that avoids global warming that might result in dangerous interference with the climate system, and pillar 4 radiative forcing management (RFM) which has been recently addressed in a draft technical report by the International Standardization Institute (ISO14082-TR), an approach that aims to reduce global warming quite fast, however without eliminating the main cause of global warming.*

### Stock-Take of The Pillars 1 And 2

**Mitigation:** There is now some indication that COP26 has bent the curve of global GHG emissions below 2°C. The chief of the International Energy Agency (IEA) Fatih Birol claimed that the targets announced in the first week of COP26, would, if fully implemented, put the world on course for 1.8°C of warming and the researchers at Australian NGO Climate Resource reached the figure of 1.9°C [1, 2]. The WGI report of the IPCC of the AR6 confirms that in the next two decades global warming is practical independent from the mitigation effort in this near future; however, the impacts of mitigation action will become evident in the medium (2041-2060) and long term (2081-2100). A recent report concludes that under very low emissions, the best estimate is that we will reach 1.5°C warming in the mid-2030s and that there is however still a chance that, if we implement strong emissions cuts, temperature rise in the coming decades might actually remain below 1.5°C. This projection assumes that additional warming caused by declining aerosol concentrations will be largely compensated by cooling resulting from rapidly declining non-CO<sub>2</sub> greenhouse gas emissions (mainly methane) – an issue that has also been reflected by the outcome of COP26, the Glasgow Climate Pact [14, 15].

**Adaptation:** According to the Adaptation Gap Report, a report jointly published by the United Nations Environment Programme (UNEP), UNEP DTU Partnership (UDP) and the World Adaptation Science Programme (WASP) in 2021, the global progress on

financing of adaptation is limited [3]. The key message being that albeit international public adaptation finance is slowly rising there is insufficient evidence, that this increase over time is narrowing the distance to meet the growing adaptation costs. This adaptation gap is also indicated by the significantly growing losses and damages that can be attributed to climate change [4]. Only limiting global warming to 1.5°C will substantially reduce losses and damages to people and ecosystems – a conclusion from a recent report of the OECD and a similar assessment is expected from WGII of the IPCC to be included in its AR6 [4].

### Assessment of Cop26 in Glasgow and Progress On Addressing ESG

Unfortunately, the Glasgow Climate Pact failed to deliver the \$100 billion in financial aid annually from rich nations to poor ones as promised in an earlier COP – the goal for delivery has been reset in Glasgow for 2023. And a proposed fund to pay for "loss or damage" caused by climate change in vulnerable countries, like islands in the Pacific that will disappear due to raising sea level, was not included but it was agreed to continue consideration of that topic. Glasgow thus marked the transition from fleshing out the rules for the 2015 Paris treaty to implementing its provisions. But unlike the aftermath of other major COPs such as in Kyoto or Paris, the climate crisis will remain front-and-centre, and this permanent breaking story is not going to recede into the background anytime soon and the additional pillars mentioned above will be of

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increasing relevance in the coming years – despite some optimism that Wall Street and its brethren around the world are finally recognizing the perils and promise of a global economy impacted by a changing climate, biodiversity loss, social upheaval, economic inequality and other pressing social and environmental issues. And that investors will hold companies accountable to reduce their impacts and, in the process, their risks, while providing capital and leadership for a "just transition" to a kinder, gentler world.

Unfortunately, the reality is far different. For all the salutary change it may be creating in financial circles, the Environment, Social and Governance (ESG) landscape remains treacherous and unforgiving. Corporate ESG data continues to be uneven and incomplete, often lacking consistency across companies, sectors and borders. Companies are disclosing some types of risks but not others. Banks are failing to align their public commitments with their on-the-ground practices — for example, falling short on managing the climate risks of their corporate and institutional customers or continuing to fund fossil-fuel development. There remains a stubborn disconnect between investors' needs for relevant ESG data and what companies are disclosing. The word "greenwashing" is being applied willy-nilly to just about any activity or claim that doesn't look kosher to someone or another [17].

A study published recently came to the conclusion that exceeding tipping points in the climate system could lead to a measurable and significant increase in the economic impacts of climate change [18]. This study provides unified estimates of the economic impacts of all eight climate tipping points covered in the economic literature so far. According to this study climate tipping points increase the social cost of carbon (SCC) by ~25% in the main specification. But as the distribution is positively skewed, it has been estimated that there is a ~10% chance of climate tipping points to more than double the SCC.

In this context it is important to realize that there are still diverse views on the optimal target for climate action. Whereas most scientists feel that the target should be 1.5 degrees C there are still others that the target should be about 3.5 degrees C. Stiglitz, in a presentation with the title "Climate Change, the Social Cost of Carbon and Risk" for the Misum Forum, 8 October Stockholm 2021, pointed out that such conflict is mainly based upon a balancing of costs and benefits by economic models with deep flaws that result in overestimating the costs of climate action and underestimating the benefits [19]. And it is a fact that the result of such models also depends strongly on subjective value judgements, eg. reflected in different discount rates chosen and that there is not one optimum path way for all which is the basic reason for the struggles experienced in international negotiations.

This situation thus makes the potential pillars 3 and 4 of climate risk management more important than ever.

### **Stock-take of the pillars 3 and 4**

CDR: To keep global temperature rise to less than 1.5C it is neces-

sary not only to reduce GHG emissions to net zero but also to remove and store carbon from the atmosphere in the range of billions of metric tons of carbon dioxide annually by 2050 [13]. Carbon removal can take numerous forms the big question being which can deliver at the scale required at a reasonable cost and with acceptable unintended side effects. Direct air capture has enormous scale of deployment but the technology is still quite costly and very energy intensive. The goal is to drive down the costs to around 100 USD/t CO<sub>2</sub> removed. According to the assessment of World Resources Institute (WRI) the most cost-effective and lowest risk strategy for building out carbon removal capacity involves developing and deploying a variety of approaches in tandem [5]. Asymmetry in the carbon cycle response to simultaneous CO<sub>2</sub> emissions and removals implies that a larger amount of CO<sub>2</sub> will have to be removed to compensate for an emission of a given magnitude to attain the same change in atmospheric CO<sub>2</sub> [6]. Direct air capture might also be used to produce carbon neutral fuels in order to substitute fossil fuels – this might help to finance the further development of that technology which still needs to be upscaled to industrial scale from the current pilot scale installations [11]. Options have also been proposed to speed up methane destruction in the atmosphere in order to facilitate meeting the 1.5°C goal – but it would require massive funding of research and development to deploy any such approach at scale [16].

RFM: While there are some encouraging signs of progress in efforts to reduce emissions globally as highlighted above, the physical science paints a daunting picture of the challenge we face. Additionally, the ongoing political gap in the international response to that challenge still grows, which is increasingly concerning. Thus, without climate response strategies commensurate to the scale of the challenge we are facing, other more uncertain approaches to reduce climate change risks such as solar radiation modification are coming under increasing scrutiny. A key prerequisite to implement such approach relates to the governance of such measures. The potential of SRM would allow to avoid global warming beyond 1.5°C, even if countries implement only their pledges as announced during COP26 – requiring a magnitude of temporary cooling comparable to that resulting from the eruption of Mount Pinatubo in 1991 (~0.5°C) [9]. However, there would be substantial residual or overcompensating climate change at the regional scales and seasonal time scales [6]. Despite those risks this issue now appears to be more important than ever and it seems urgent that the international community starts discussion, e.g., on governance of RFM [7]. Nevertheless, the initiative of the EU and the US, to address mitigation of SLCF (short lived climate forcers), with a focus on methane demonstrates that the need to implement measures that slow down global warming in the near time, gains traction. The EU and US got more than a hundred countries on board with a commitment to cut methane emissions of SLCF by 30% by 2030, putting oil and gas sector leakage in the spotlight [8]. Unfortunately, big polluters of methane including China, India, Russia, Australia, Turkey and South Africa did not join.

## Conclusion and The Need for Prioritization

Actions need to be further enhanced on all four pillars, given the Sixth Assessment report of Working Group I of the IPCC released in August 2021 [12]. According to this report mankind is already in an emergency situation that requires smart actions related to all of the above-mentioned pillars in order to limit harm to the extent possible. This requires careful use of the limited resources available, be it financial, technical, or other constraints such as current status of development or willingness to co-operate at the global level. All activities will have to be considered through the lens of sustainable development and the text below addresses some aspects of this prioritization.

This article assumes that prioritization should be reflected by the financial resources available for each pillar and by identifying priority actions in each one. This implicitly means that a policy that makes available any financial resources required should be avoided because printing money would only trigger inflation and the guiding power of finance would get lost and chaos and thus suboptimal mixture of actions would result. Thus, the global community would have to keep inflation within reasonable limits in order not to lose control on actions. A reasonable basis for allocation of finance to the four pillars identified in this paper can be found in a recent interview with David Keith [21].

Given, that the most vulnerable people worldwide are those that are not reflected in figures of GDP, a metrics has to be developed which truly reflects also the status of those people that are not integrated in the official economic data but live in small communities on the basis of trade without money – by valuing Civil Society (Environmental) engagement.

It is suggested to learn from the management of the Covid crisis in order to avoid similar failures in the management of the climate crisis which will become more and more challenging in the coming decades. One lesson learned relates to the role of science and scientists. In the context of the Covid-19 crisis it has confused the broader public that scientists did not limit themselves to provide robust scientific findings and a description of the uncertainties and risks that are inherent in all scientific findings but that scientists also had the ambition to prejudge political decisions on the action to be taken. When it comes to climate change the IPCC has developed a very well working role model for science and scientists which has demonstrated its robustness and usefulness at the international level. It would be very helpful if such role model which works well at the international level would also be used at the national and community level. Another important issue is the need for decision makers to identify addressing climate change risks as a top priority and that any such debate on the action to be taken should be driven not by broader political opportunities but by the need to minimize the number of people that will have to suffer from the adverse effects of climate change. Otherwise people will quickly be split and unrest and chaotic behaviour will further enhance the challenges for all.

## Summary

This article raises concerns about the current impacts but even more about the future impacts of climate change, in particular for the most vulnerable countries and most vulnerable people and ecosystems. An urgent need to enhance action on all four approaches respectively pillars to reduce climate change risks has been identified – be it mitigation, adaptation, carbon dioxide removal and radiative forcing management. This requires not only a speedier shift to renewables and enhancement of support for adaptation - in particular for vulnerable developing countries - to close the adaptation gap but also significant efforts at the policy level including a careful and comprehensive identification of current barriers to implementation, especially for CDR and RFM. The following issues that need to be addressed for CDR and RFM at the international level are: closing of knowledge gaps by intensified research; development of a governance of research as well as for implementation; social appraisal; and multilateral discussion [10]. Given the huge dimension of such undertaking a prerequisite would be that the self-glorification that is often encountered in policy makers as well as journalists as well as scientists will cause us to fail – as we did in the past when we tried to limit global greenhouse gas emissions [20]. Only an inner attitude that is characterized by humility towards the Creator and his creation will show us the way to overcome such crises. The longer we are blind and deaf to the fundamentally known solutions as ever and again identified by the IPCC, the more suffering we will have to endure. Inner repentance is the key to human wellbeing.

## References

1. Fatih Birol (2021) Cop26 Climate Pledges Could Help Limit Global Warming to 1.8 °C, But Implementing Them Will Be the Key. Iea 2021.
2. [https://twitter.com/ClimateRsrc/status/1455809984571133956?utm\\_source=Climate+Weekly&utm\\_campaign=790e7b0fb7-EMAIL\\_CAMPAIGN\\_2021\\_10\\_29\\_04\\_03\\_COPY\\_99802&utm\\_f9b790b790b094b7b=0f790b094b7b94b=0f9b790b094b7b9](https://twitter.com/ClimateRsrc/status/1455809984571133956?utm_source=Climate+Weekly&utm_campaign=790e7b0fb7-EMAIL_CAMPAIGN_2021_10_29_04_03_COPY_99802&utm_f9b790b790b094b7b=0f790b094b7b94b=0f9b790b094b7b9)
3. UNEP (2021) Adaptation Gap Report 2020. World Adaptation Science Programme 2021.
4. [https://www.oecd-ilibrary.org/sites/55ea1cc9-en/1/3/3/index.html?itemId=/content/publication/55ea1cc9-en&\\_csp\\_=0ee401aa48aeba996329cd66a38f98a9&itemIGO=oecd&item-ContentType=book#figure-d1e14755](https://www.oecd-ilibrary.org/sites/55ea1cc9-en/1/3/3/index.html?itemId=/content/publication/55ea1cc9-en&_csp_=0ee401aa48aeba996329cd66a38f98a9&itemIGO=oecd&item-ContentType=book#figure-d1e14755)
5. James Mulligan, Gretchen Ellison, Kelly Levin, Katie Lebling, Alex Rudee (2020) 6 Ways to Remove Carbon Pollution from the Sky. World Resources Institute (2020).
6. IPCC\_AR6\_WGI\_TS (2021) [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_TS.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_TS.pdf)
7. <https://www.c2g2.net/wp-content/uploads/October-C2G-Newsletter.pdf> C2G News October 2021
8. [https://www.climatechangenews.com/2021/11/02/100-countries-join-methane-pledge-china-india-australia-russia-stay/?utm\\_source=Climate+Weekly&utm\\_campaign=b956c71685-EMAIL\\_CAMPAIGN\\_2021\\_10\\_29\\_04\\_03\\_COPY\\_03&utm\\_medium=e](https://www.climatechangenews.com/2021/11/02/100-countries-join-methane-pledge-china-india-australia-russia-stay/?utm_source=Climate+Weekly&utm_campaign=b956c71685-EMAIL_CAMPAIGN_2021_10_29_04_03_COPY_03&utm_medium=e)

- mail&utm\_term=0\_bf939f9418-b956c71685-408094996  
Climate Home News, 2 November 2021
9. Brian j Soden, Richard T Wetherald, Georgiy L Stenchikov, Alan Robock (2002) Global Cooling After the Eruption of Mount Pinatubo: A Test of Climate Feedback by Water Vapor. *Science* 296: 727-730.
  10. Working Group, I: Climate Change 2021: The Physical Science Basis (2021) C2g [https://www.c2g2.net/wp-content/uploads/20210810-C2GBrief\\_AR6\\_WG1\\_SRMfinal.pdf](https://www.c2g2.net/wp-content/uploads/20210810-C2GBrief_AR6_WG1_SRMfinal.pdf)
  11. Clive Thompson (2021) Can Vacuuming Carbon Dioxide Out of the Air Reverse Climate Change? *Bulletin of the Atomic Scientists* 2021.
  12. Arias PA, N Bellouin E Coppola, RG Jones, G Krinner, J Marotzke, et al. (2021) Cambridge University Press 2021: 1-159. [https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC\\_AR6\\_WGI\\_TS.pdf](https://www.ipcc.ch/report/ar6/wg1/downloads/report/IPCC_AR6_WGI_TS.pdf)
  13. [https://www.nap.edu/resource/other/dels/net-zero-emissions-by-2050/?utm\\_source=NASEM+News+and+Publications&utm\\_campaign=259a90bc3e-Eblast\\_COP26\\_Resource\\_2021\\_11\\_09&utm\\_medium=email&utm\\_term=0\\_96101de015-2](https://www.nap.edu/resource/other/dels/net-zero-emissions-by-2050/?utm_source=NASEM+News+and+Publications&utm_campaign=259a90bc3e-Eblast_COP26_Resource_2021_11_09&utm_medium=email&utm_term=0_96101de015-2) The National Academies of Sciences, Engineering Medicine
  14. 10 New Insights in Climate Science (2021) Future Earth, The Earth League, WCRP 2021: 1-56. <https://zenodo.org/record/5639539#.YclQmmhBy1s>
  15. Glasgow Climate Pact (2021) [https://unfccc.int/sites/default/files/resource/cma2021\\_L16\\_adv.pdf](https://unfccc.int/sites/default/files/resource/cma2021_L16_adv.pdf)
  16. <https://www.heise.de/hintergrund/Nach-Vorbild-der-CO2-Abscheidung-Wie-sich-Methan-aus-der-Luft-filtern-laesst-6276867.html>
  17. Joel Makower (2021) Why ESG will still be the Wild West in 2022. GreenBuzz <https://www.greenbiz.com/article/why-esg-will-still-be-wild-west-2022>
  18. Simon Dietz, James Rising, Thomas Stoerk, Gernot Wagner (2021) Economic Impacts of Tipping Points in The Climate System. *Proceedings of the National Academy of Sciences* 118: 1-9.
  19. Stockholm (2021) Misum Forum Stockholm [https://www.youtube.com/results?search\\_query=Misum+Forum+2021+Stiglitz](https://www.youtube.com/results?search_query=Misum+Forum+2021+Stiglitz)
  20. Radunsky K, Cadman T (2020) Addressing Climate Change Risks: Importance and Urgency. *Handbook of Climate Change Management 2020*: 1-27.
  21. David Paterson (2021) Could Reflecting the Sun Save the Planet? Climate change Experts katharine hayhoe and david keith talk. Toronto Star

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